

As this is the only species with which I am acquainted of a green colour in its growing state, I was at first inclined to consider it the *Fragilaria confervoides* of Greville; but I have lately received from Mr. Harvey an authentic specimen of that plant, which I have ascertained to be *Fragilaria hyemalis*, Lyngb.

Ehrenberg describes his *Frag. pectinalis* as striated. I have never succeeded in detecting the slightest appearance of striæ on the lateral surfaces, although I have repeatedly and carefully examined them; nor did Mr. Berkeley, to whom I sent specimens, perceive them. On the other hand, Mr. Dalrymple observes, that the striæ, though difficult to see, are nevertheless present. Mr. Jenner, who is a very accurate observer, thinks that there are very faint, almost obsolete striæ, which can be only seen when the endochrome is removed: in another letter, however, he enumerates the absence of striæ among the characters of the species. Thus it will be seen, that even if striæ are present in this plant, they cannot be adopted as one of its characters without the risk of misleading the observer.

PLATE II. fig. 6. *a*, states of *F. virescens*; *b*, frustules, deprived of their endochrome; *c*, lateral view.

Analysis.

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| 1. | { The margins of the lateral surfaces flat or concave on one side, and on the other convex <i>pectinalis</i> .
{ The margins of the lateral surfaces convex and similar on both sides 2 |
| 2. | { Lateral margins with distinct evident puncta <i>hyemalis</i> .
{ Lateral margins without puncta 3 |
| 3. | { Frustules very narrow, the puncta at their ends indistinct or wanting <i>rhabdosoma</i> .
{ Frustules rather broad, with two evident puncta at each end <i>virescens</i> . |

[To be continued.]

XVI.—*Considerations on the tribe of the Podaxineæ, and description of the new genus Gyrophragmium.* By M. MONTAGNE*.

AMONGST the Trichogastrous Fungi there is a small tribe which has recently been raised to the rank of a family by M. Corda, and which is remarkable among other characters by the presence of a columella traversing the axis of the *peridium*: it is the *Podaxineæ*. This tribe, which was formerly composed of the three genera *Cycloderma*, Klotzsch, *Cauloglossum*, Greville, and *Podaxon*, Desvaux, became all at once doubled by the addition of three others, the *Secotium*, Kunze, the *Polyplocium*, Berkeley, and the *Gyrophragmium*, nob., which forms the principal object of this notice.

* From an extract by the Author in the 'Comptes Rendus,' No. 16, 1843.

Gyrophragmium results from the dismembering of the genus *Montagnea*, founded by Fries, 'Genera Hymenomycetum,' p. 7, on two fungi which grow on the shores of Maguelone, in the environs of Montpellier, one of which had received the name of *Agaricus arenarius* from M. DeCandolle, the other that of *Agaricus ocreatus* from M. Delile. The continued study which I have made of the second of these species, subsequently found near Bona and brought in all stages of evolution by Captain Durieu, Member of the African Commission, has proved to me that these two fungi, although similar and apparently related, do not belong to the same family. A very young individual of *Gyrophragmium Dunalii* showed indeed in the clearest manner, that what had been taken for the pileus of an Agaric was the superior half of a *peridium*, the inferior half of which is represented by an ample *volva* surrounding the stem, and that the supposed leaflets or lamellæ were only processes, or rather partitions emanating from all the points of the pileiform portion of the *peridium*. The following are the characters upon which this curious genus is established:—

Receptaculum stipitatum. Peridium primo turbinatum, dein medio orbiculatim ruptum superne pileiforme cum stipite centrali ad apicem usque producto, volva ampla (quæ nihil aliud nisi pars peridii inferior) instructo continuum. Capillitium in dissepimenta contextum lamelliformia subparallela e peridii toto hemisphærio descendencia, a stipite distantia, in plano ramosa, non autem anastomosantia, sinuosa, plicato-crispata adeoque densata ut sibi cohærere videantur, primo lenta olivacea, tandem exarescentia fragilissima, nigra, subtus libera, labyrinthiformia. Flocci liberi nulli. Sporæ globosæ, pedicellatæ, dissepimentis affixæ. Contextus peridii stipitisque fibrosus in dissepimenta continuatus. Fungi arescentes, persistentes, habitu *Agarico* vel *Boleto* similes, specie volvati aut annulati, stipitati, in arenosis maritimis *Africæ* borealis et *Galliæ* australis hucusque obvii.

The genus *Gyrophragmium* differs from *Polyplocium*, Berk., on the one hand by the form and the rigidity of its partitions, and on the other by the absence of free filaments intermixed with the sporules, filaments which are found in the latter genus. Just as in *Secotium* its sporules are fixed by a short pedicel to the walls of the compartments, but these compartments, which are free in *Gyrophragmium*, form a spongy tissue in the other genus by their frequent anastomoses.

Considered according to the degree of their structure, the genera of the tribe *Podaxineæ* may be arranged as follows: *Cauloglossum*, *Cycloderma*, *Podaxon*, *Secotium*, *Polyplocium* and *Gyrophragmium*. As *Secotium* is the form of transition from *Podaxon* to *Polyplocium*, so the latter evidently constitutes a passage between the first of these genera and *Gyrophragmium*. I have

every reason to suppose that one day, when we are better acquainted with the history of its development, of which we are entirely ignorant at present, the genus* *Montagnea* itself will have to be placed at the head of this tribe, from which *Batarrea* is probably not so far removed as is supposed.

XVII.—*On the different modes of preserving Microscopic Objects.*

By JOHN WM. GRIFFITH, M.D., F.L.S. &c.

DURING the progress of microscopic experiments and examinations, we are continually meeting with parts in which some peculiar structure is particularly well illustrated, which we are anxious to preserve; sometimes, for the purpose of reference and comparison, we are obliged to keep specimens of different structures by us. It is my intention here to say a few words on the best methods of so doing.

The description of these is no slight task, for it is by no means easy to render a clear account of the manipulations required, so as to make them applicable by others; moreover, one in the habit of continually putting up specimens is apt to overlook mentioning certain minutiae, which, from use, he is hardly aware of performing, but which are essential to the perfection of the work. The main point is to protect the object from injury by surrounding influences, such as violence, the action of the preservative liquids, evaporation, &c. This in a few cases is impossible, but in the majority any alterations produced in those specimens which are properly put up are so slight as not to destroy their value. There are two modes of viewing microscopic objects; one when illuminated by reflected, the other by transmitted light. I shall first notice the former.

OPAQUE OBJECTS are of two kinds; those preserved in the dry, and those in the moist state. *α*. The dry ones are usually fastened upon circular discs, or columns of cork, by a little gum, or solution of gum mixed with isinglass; they are then transfixed with fine pins, so as to be stuck into cork, which forms the bottom of the drawer in which they are arranged. Sometimes the circular flat discs of cork are fastened upon glass slips, and arranged in cabinets in the same manner as transparent objects. The cork must always be blackened, so as to prevent the reflection of any luminous rays which might interfere with the distinct vision of the object. This is effected in cork either by scorching or painting it over with an intimate mixture of finely powdered lamp-black and gum-water. But almost any black surfaces may be used for this purpose—black velvet, silk, paper, or blackened metal. When the opaque object is

* M. Montagne has very lately received valuable information on this genus from M. Dunal, which he will no doubt shortly publish. From the observations of Dunal, it appears that all the specimens hitherto collected have been imperfect. We are happy to hear that M. Dunal, whose letter and sketches we have had the advantage of inspecting, is using every exertion to procure this most curious and interesting production in every stage of growth.—ED.